FINAL DETERMINATION

Air Construction (PSD) Permit
Florida Municipal Power Agency
Cane Island Power Park Combined Cycle Unit 4
DEP File No. 0970043-014-AC (PSD-FL-400)

PERMITTEE

Florida Municipal Power Agency (FMPA)
8553 Commodity Circle
Orlando, Florida 32819

PERMITTING AUTHORITY

Florida Department of Environmental Protection (Department)
Division of Air Resource Management
Bureau of Air Regulation, Special Projects Section
2600 Blair Stone Road, MS #5505
Tallahassee, Florida 32399-2400

PROJECT

DEP File No. 0970043-014-AC
Air Permit PSD-FL-400
Cane Island Power Park
Combined Cycle Unit 4
Osceola County

This permit authorizes the construction of a nominal 300 megawatts (MW) natural gas-fueled combined cycle unit (Unit 4) at the existing Cane Island Power Park.

NOTICE AND PUBLICATION

The Department distributed a Notice of Intent to Issue Air Permit package on May 8 2008. The Public Notice of Intent to Issue PSD Permit was published on May 17, 2008 in the Osceola News Gazette. The Notice included: the project location and a project summary; a brief description of the Department's determination of Best Available Control Technology (BACT); emission estimates; and conclusions with regard to the impacts of the air emissions. The Notice also included the instructions on: submittal of written comments; how to request a public meeting; how to petition for an administrative hearing; and how to view the public files at the Department offices in Tallahassee and Orlando.

Additionally the Notice provided the Department's webpage that includes: the Notice; the Application; key correspondence; the Department's Technical Evaluation and Preliminary Determination; the Draft Permit; and written comments received during the 30-day comment period. The described information is available at:

http://www.dep.state.fl.us/Air/permitting/construction/cane_island.htm

Requests for Extension of Time to File a Petition for Administrative Proceedings were granted by the Department through July 21, 2008 and then through August 29, 2008. FMPA withdrew its most recent extension request on August 29 following substantial agreement with the Department's technical representatives on the final resolution of the applicant's comments.

COMMENTS

No requests for an administrative hearing were received and no significant comments on the Draft Permit were received from the public, the Department's Central District Office, The U.S. Fish and Wildlife Service, or the National Park Service. Written comments were received from the applicant during the 30-day comment period. There were numerous minor comments that are not repeated or assessed below. Only the substantial comments related to the permit are addressed in this final determination. Comments regarding the Technical Evaluation and Preliminary Determination are acknowledged but no changes will be made to that final document that accompanied the draft permit. All comments are accessible at the following link: www.dep.state.fl.us/Air/permitting/construction/cane_island.htm .

Changes to the permit resulting from the substantial comments are shown below in strikeout (~~strikeout~~) and double underline (double underline) formats for deletions and additions respectively.

1. Section II, Condition 8:

   Comment

   Regarding date by which an application for a Title V Operation Permit must be submitted - add language to identify commencing operation as "first fire" date.

   Response

   The requirement states: "The permittee shall apply for a Title V operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after completing the required work and commencing operation."

   During subsequent discussions, the applicant agreed that the language in the draft permit (and other similar permits) is acceptable and that no change is necessary.

2. Section III-A, Condition 1:

   Comment

   With regard to best available control technology (BACT), delete reference to $PM_{2.5}$.

   Response

   The Department conducted a BACT assessment for $PM_{2.5}$ in the issued technical evaluation but rules implementing the BACT review requirements have not yet been adopted by the Department.

   The Department agrees that there is not a requirement within the permit specifically limiting $PM_{2.5}$. However the measures identified in the technical evaluation insure that $PM_{2.5}$ will be properly controlled and minimized. These measures include:

   - BACT determinations for PM and PM_{10}.
   - The gas turbine shall fire natural gas as the primary fuel, which shall contain no more than 2 grains of sulfur per 100 standard cubic feet (2 gr S/100 SCF) of natural gas. The duct burners are limited to firing only natural gas meeting this specification.
   - Visible emissions shall not exceed 10% opacity based on a 6-minute average.
   - Ammonia emissions (slip) shall not exceed 5 ppmvd.

- The cooling tower shall be equipped with high-efficiency mist eliminators with a maximum guaranteed drift rate of 0.0005%.

Section III.A, Condition 1 will be modified as indicated immediately below. Section III.A, Condition 12, Section III.D, Condition 2 and Appendix BD will be similarly modified.

BACT Determinations: The emission unit addressed in this section is subject to a BACT determination for carbon monoxide (CO), nitrogen oxides (NO_X), particulate matter (PM/PM_{10}/~~$PM_{2.5}$~~), sulfuric acid mist (SAM), and sulfur dioxide (SO_2).

3. Section III-A, Condition 10:

Comment

Revise language to reflect the natural gas sulfur limitation of 2 gr/100 SCF rather than 2.0 gr/100 SCF.

Response

The requested change will be made and will make the condition consistent with references throughout the rest of the permit.

4. Section III-A, Condition 12:

Comment

Several very minor changes were requested in the combined cycle unit emissions standards table. The key change requested is to clarify the requirements of 40 Code of Federal Regulations (CFR) 60, Subpart KKKK. Specifically the request is to correct the averaging time for the Subpart KKKK NO_X emission limit from 4 hours to 30 days.

Response

The applicant is correct. The limit for combined cycle units is based on a 30-day rolling average. The 4-hour basis applies to simple cycle units.

There is no meaningful impact due to the correction. The Department's BACT determination of 2.0 parts per million by volume, dry, at 15 percent oxygen (ppmvd) is based on a 24-hour basis. The Subpart KKKK limitation is 15 ppmvd.

Comment

FMPA requests amendment of footnote "g" of the same condition. One change would be to add per the preamble of Subpart KKKK that startup, shutdown and malfunction emissions are included in 30-day NO_X rolling average calculations but that continuous compliance is not required by Subpart KKKK.

Response

The condition will not be changed. The permit addresses startup, shutdown, malfunction and compliance during those times in a separate condition. The statements the applicant is referring to are in Volume 71, Federal Register, Pages 38487-38488 and are repeated verbatim below.

"One commenter wanted clarification of the applicability of the NO_X standards during periods of startup, shutdown and malfunction. Two commenters pointed out that while these periods of excess emissions were not considered violations, they might appear to be to State regulatory agencies or the public."

EPA responded as follows:

"Regarding the negative stigma, we cannot determine how other parties interpret the final rule. It is clear that continuous compliance is not a requirement of the final rule *during periods of startup, shutdown, and malfunction*." (Italics added by Department)

5. Section III-A, Condition 17:

Comment

Several changes were requested regarding the excess emissions resulting from startups, shutdowns and malfunctions. The key changes requested were to define a 24-hour calendar day as running from midnight to midnight and add paragraphs defining STG/HRSG System Hot Startup and Documented Malfunction. After discussions with the applicant, their request was modified and the changes to Condition 17 are given as follows:

Excess emissions resulting from startup, shutdown, and documented malfunctions shall be permitted, provided that operators employ the best operational practices to minimize the amount and duration of emissions during such incidents. For the CTG/HRSG system, excess emissions of NO_X and CO emissions resulting from startup, shutdown, or documented malfunctions shall not exceed ~~two hours~~ the following specified time periods in any 24-hour period (for the purposes of this condition, "any 24-hour period" means a calendar day, midnight to midnight). ~~except for the following specific cases. A "documented malfunction" means a malfunction that is documented within one working day of detection by contacting the Compliance Authority by telephone, facsimile transmittal, or electronic mail.~~

a. *STG/HRSG System Cold Startup:* For cold startup of the STG/HRSG system, excess NO_X and CO emissions from the CTG/HRSG system shall not exceed six hours in any 24-hour period. A "cold startup of the STG/HRSG system" is defined as startup of the combined cycle system following a shutdown of the steam turbine lasting at least 48 hours.

   {Permitting Note: During a cold startup of the steam turbine system, the CTG/HRSG system is brought on line at low load to gradually increase the temperature of the STG and prevent thermal metal fatigue.}

b. *STG/HRSG System Warm Startup:* For warm startup of the STG/HRSG system, excess NO_X and CO emissions shall not exceed four hours in any 24-hour period. A "warm startup of the STG/HRSG system" is defined as a startup of the combined cycle system following a shutdown of the steam turbine lasting at least 8 hours and less than 48 hours.

c. *STG/HRSG System Hot Startup*: For hot startup of the STG/HRSG system, excess NO_X and CO emissions shall not exceed two hours in any 24-hour period. A "hot startup of the STG/HRSG system" is defined as a startup of the combined cycle system following a shutdown of the steam turbine lasting less than 8 hours.

d. *Shutdown:* For shutdown of the combined cycle operation, excess NO_X and CO emissions from the CTG/HRSG system shall not exceed three hours in any 24-hour period.

e. *Documented Malfunction:* For the CTG/HSRG system, excess emissions of NO_X and CO resulting from documented malfunctions shall not exceed two hours in any 24-hour period. A "documented malfunction" means a malfunction that is documented within one working day of detection by contacting the Compliance Authority by telephone, facsimile transmittal, or electronic mail.

Response

According to FMPA the original condition would not have allowed them to restart the unit after a malfunction until 24 hours later (without violating the condition). The condition as originally drafted by the Department was also in the previously issued permit for the nearly identical FMPA Treasure Coast Energy Center (TCEC). The revised condition will allow FMPA to restart Unit 4 as early as the next midnight following such a (unlikely) malfunction. The changes are acceptable to the Department and are clearer to FMPA and its partner, KUA.

6. Section III-A, Condition 23:

Comment

Clarify the averaging time basis (block versus rolling) for 24-hour and 12-month CO limits in the condition that described continuous compliance for the pollutant.

Response

The clarification was made in the final permit indicating that the basis for the 24-hour limit is a block average and the basis for the 12-month limit is a rolling average.

7. Section III-A, Condition 26

Comment

Regarding continuous emission monitoring system (CEMS) availability – FMPA requests referral to underlying requirements from the applicable CFR subpart rather than writing a separate condition.

Response

The condition was also in the previously issued permit for the nearly identical FMPA TCEC. Neither 40 CFR 60, Subpart KKKK nor 40 CFR 75 include minimum monitor availability provisions. The monitoring availability requirement of 95% arises from the BACT determination for a much more stringent NO_X standard of 2.0 ppmvd that requires continuous compliance demonstration. The condition will not be changed.

8. Section III-A, Condition 28

Comment

Remove requirement to monitor and record the daily operating rate of the combustion turbine-electrical generator (CTG) and the heat recovery steam generator/duct burner (HRSG/DB).

Response

The condition as drafted by the Department was also in the previously issued permit for the nearly identical FMPA TCEC. The requested change will not be made. All operators of such equipment record the described data for various purposes.

9. Section III-A, Condition 29

   Comment

   Remove requirement to monitor fuel usage.

   Response

   The requirement for a monthly operating summary including fuel usage is reasonable. It is required in all of the recent permits issued for power plants including the one issued to FMPA for the nearly identical TCEC. All operators of such equipment record the described data for various purposes.

   The condition will be maintained but will be corrected to indicate reporting only for natural gas (the exclusive fuel for Unit 4).

10. Section III-A, Condition 32

    Comment

    Revise the language to reflect semi-annual reporting as required by the NSPS.

    Response

    The condition requiring quarterly excess emissions reports is reasonable and is required in all of the recent permits issued for power plants including the one issued to FMPA for the nearly identical TCEC. No change will be made in the condition.

11. Section III-A, Condition 33

    Comment

    Revise the language describing the annual operating report (AOR) to reference the specific rule and not the specified submittal date of March 1st of each year.

    Response

    This request was reviewed and will be included in the final permit. The AOR submittal date will be May 1 in 2008 and April 1 in years thereafter. Therefore the suggestion by FMPA is more accurate than the condition as drafted.

12. Section III-B, Condition 4

    Comment

    Revise the language that requires FMPA to maintain a permanent file of the sulfur concentration in the ultralow sulfur diesel fuel oil (ULSD FO) used in the emergency fire pump. They wish to clarify that records should be maintained for only five years.

    Response

    The permittee shall maintain a file of the certified fuel sulfur analyses from the fuel vendor containing the most recent 5 years of records.

13. Section III-B, Condition 5:

Comment

Indicate that using a model year 2009 (or later) NSPS certified engine (for the emergency diesel fire pump) will demonstrate compliance with the CO BACT.

Response

The claim is likely true for engines corresponding to model year 2008 but not necessarily true for engines corresponding to model years 2009 or later. The earlier engines have a specific NSPS CO limit whereas the later models do not have a NSPS-based CO limit.

The BACT CO limit for the model year 2009 engines is the same as the NSPS CO limit for earlier model engines.

Any certification obtained would need to specify that the engine comports to the NSPS requirements for model year 2009 or after and also would need to certify that it meets the BACT limit of 2.6 grams CO per brake horsepower-hour (gm/bhp-hr).

For reference, the information provided to the Department (application Appendix C) regarding emissions from the engine indicated 0.5 gm CO/bhp-hr with concurrent NO_X and VOC (THC) emissions of 3 and 1 gm/bhp-hr, respectively. While the NO_X plus VOC (THC) total is greater than the future NSPS limit (NO_X + THC = 3 gm/bhp-hr), it should be possible to find a vendor that can provide an engine meeting the Department's BACT specifications.

No change will be made in the condition.

14. Section III-B, Condition 6

Comment

Indicate that no additional testing is required for the emergency diesel fire pump engine beyond the NSPS.

Response

The condition will not be changed because it is possible that FMPA will buy an engine certified to meet the NSPS, but not necessarily pre-certified to meet the BACT requirements.

15. Section III-C, Condition 6

Comment

Correct the basic units of emissions for the safe shut down generator to gm/bhp-hr from gm per kilowatt-hour (gm/kW-hr).

Response

Values will be expressed as gm/bhp-hr as requested and in accordance with the NSPS that is identical to the BACT determination. Emissions in terms of gm/kW-hr will also be maintained in parentheses in accordance with the table from the NSPS.

16. Section III-C, Condition 7

    Comment

    Indicate that no additional testing is required for the safe shutdown diesel electric generator beyond the NSPS.

    Response

    The condition will not be changed because it is possible that FMPA will buy an engine certified to meet the NSPS, but not necessarily pre-certified to meet the BACT requirements.

    The Department will also correct the part of the statement in the permitting note that says that the BACT CO limit is the same as the NSPS CO limit. There is not an NSPS CO limit for model years after 2009.

17. Section III-D, Condition 1

    Comment

    The applicant requested removal of the details of the cooling tower related to size, volumetric flow rate, cell height, cell diameter and drift specification.

    Response

    The specifications were taken from the design information provided in the FMPA CIPP Unit 4 application. Specifications for such parameters were included for the cooling tower in the nearly identical FMPA TCEC permit.

    The Department had indicated in the draft permit for the present project that the specifications were "nominal" in nature thus providing some flexibility for the final design.

    No changes will be made in this condition.

18. Appendices

    Most changes requested in the appendices are the same as requested in the permit conditions. The only other change is a clarification that the version of 40 CFR 60, Subpart KKKK that applies to the present project is the one promulgated in 2007.

CONCLUSION

The final decision by the Department is to issue the permit with the changes noted.